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Domestic science college with the emphasis on 'science'

There was much cause for mocking. There was talk of "the wooden spoon university" whose graduates would take home with them the diploma "Kitchen Engineeress".

Many thought the intentions of the *Höhere Fachschule* for domestic science in Sigmaringen presumptuous, whereas others were happy to see a chance to rise more highly the typical wifely duties that are so often scorned.

Head of the school Professor Foltert had something quite different in mind when he applied to the Baden-Württemberg Education Ministry to describe his establishment as a "technical school for the economics and business techniques of the household including nourishment and of the clothing industry."

This impossibly long title leaves no doubt about who is to be trained at this school for women.

After a course at the school graduates from Sigmaringen take up posts in large households where they are able to operate all refined equipment used in a home and organise the most modern kitchen.

Other graduates from the school can enter the fuel and power supply industry, catering and household equipment industries as consumer advisers. Another alternative is an executive position in agricultural firms, or they can be examiners in the kitchen equipment industry, testing complicated gadgets for faults.

Requirements for entry to the school state that applicants must be 18, they must have graduated from a technical school and had a two-year apprenticeship in practical work.

In the first four semesters the emphasis is on general subjects such as mathematics, chemistry, physics, economics and business management, which form the basis for later, more specialised studies. After the fourth semester there are five specialised subjects that might be chosen: general and agricultural budgeting, the economics of catering, domestic science and cooking.

Professor Foltert said: "Graduates from our college represent, at least as far as Baden-Württemberg is concerned, a completely new type with a great potential in industry. Unfortunately when the school was established no clear decision was made about career training. Our students graduate with state diplomas in managing household affairs and as expert advisers but these are specifications of activities and not of professions."

er" title correct since the education offered at the college is equivalent to that in a technical college.

The only other similar school with parallel aims is the *Höhere Frauenfachschule* for the clothing industry in Mönchengladbach. But this college has not

yet undertaken the training of tonight experts for large households, for the fuel and power industry, for catering and for the household equipment industry.

The duties that will be performed by former pupils of the Sigmaringen institution have previously come from the ranks of industry itself.

The college, founded in 1968, is in a delightful setting with an idyllic view onto the town on the Danube. But there is a catch for students: 50 of them. This means small classes and intensive training.

There are plans to extend the school to accommodate 270 students and twenty lecturers. In the course of this summer two new buildings for chemistry, physics and technical drawing will be completed.

The requirements for practical training in the fifth and sixth semesters will be completed this summer.

There is a large kitchen providing for the Mensa, and this kitchen serves as a laboratory for cooking lessons, experiments in nutrition.

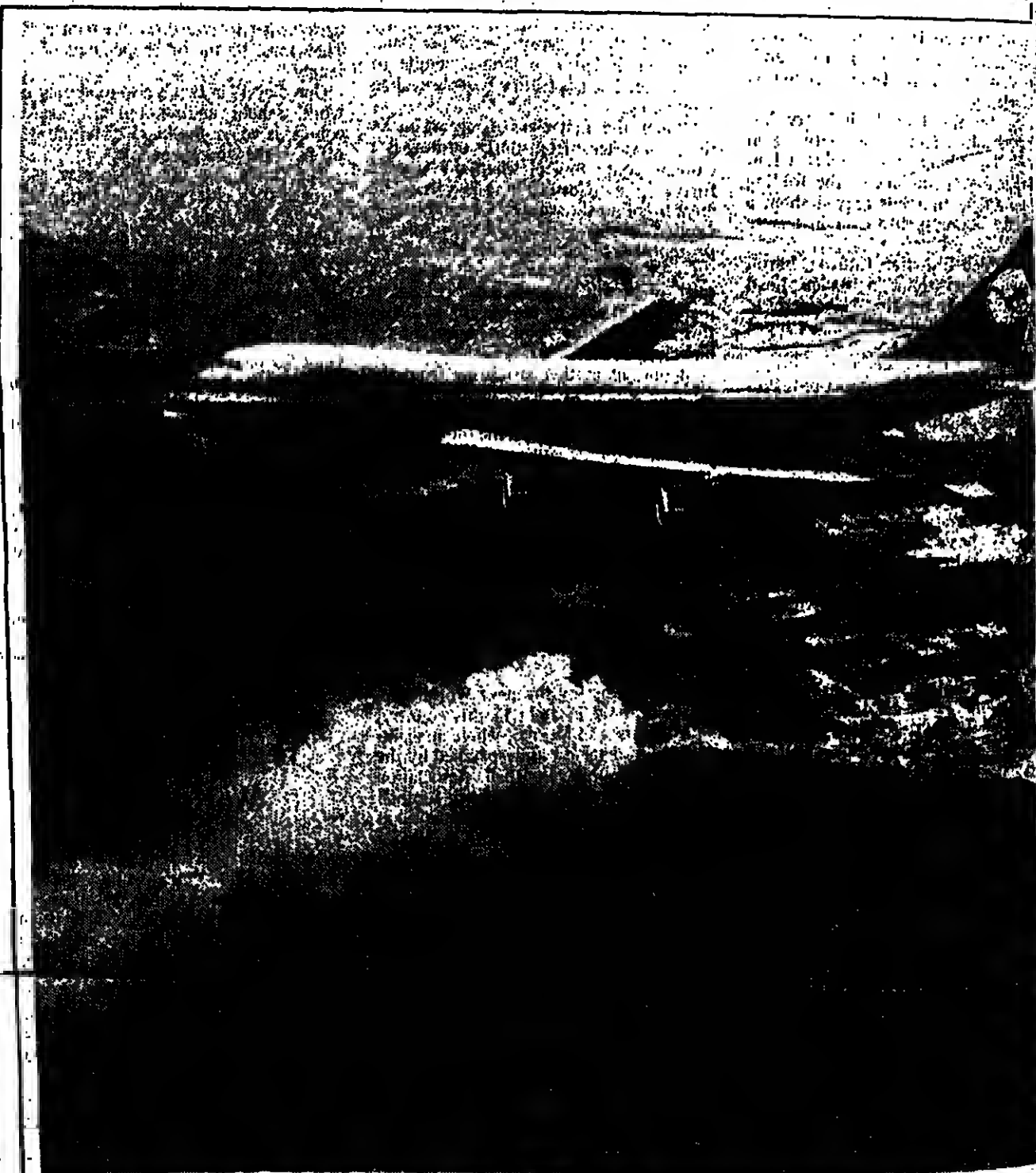
A further room is free for use, tested for household equipment and the durability of labour-saving devices.

The school is not strictly restricted to girls and one man has applied for co-starting in the winter semester.

Professor Foltert is hoping for a male student. He said: "Young men do not fully realise the opportunities are missing. Butchers, bakers and so on have graduated from technical schools and wish to further their education. They are not sure what they have really ready."

One possibility in the future is a mass catering business in industrial areas where meals for possibly more than 3,000 people have to be prepared a single mealtime.

(DIE ZEIT, 12 July 1970)



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The German Tribune

A WEEKLY REVIEW OF THE GERMAN PRESS

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Hamburg, 16 July 1970
Ninth Year - No. 431 - By air

Cambodia operation unites East Asian communist front

DIE WELT
KAMBOJIAN TAKING OVER THE DEUTSCHLAND

Debate on the pros and cons of America's Cambodian operation will continue for some time to come. Politically it has had further-reaching effects that considerably upset President Nixon's Asian strategy.

The long-sought exchange of views with Peking, on the face of it Washington's major long-term goal prior to intervention in Cambodia, has been broken off.

The US-Chinese talks in Warsaw, in the West on occasion euphorically described as a turning point in world affairs, are for the time being not to be continued — at China's request.

Moscow can breathe a sigh of relief. Rapprochement between Washington and Peking has once more retreated into the far-off distance. Cambodia has relieved the Kremlin of a nightmare prospect.

To begin with the situation looked completely different. The American invasion surprised both the Chinese and the Russians and caught them pretty well on the hop. Moscow has still to find a convincing counter.

The Kremlin has accused Peking of being partially responsible for the fall of Prince Sihanouk by virtue of subversive

solidarity, drowned the unhappy memories their communist neighbours have of cultural revolutionary isolationism and constructed, for propaganda purposes at least, a united front of North Koreans, Chinese, Vietnamese and Laotian Communists and Cambodian supporters of Prince Sihanouk.

All of a sudden East Asian Communism seems to revolve around Peking again. But North Korea and North Vietnam, awkward bedfellows for the Chinese in the past, will not allow themselves to be reduced to the status of satellites on this occasion either.

It is even conceivable that both have advocated the anti-American united front more energetically than Peking. The North Koreans have been annoyed for the last four years — and not only because they were decimated by revisionists by fanatical Red Guards in neighbouring China.

The North Koreans also objected to the group around Mao Tse-tung weakening China by means of the cultural revolution at a juncture when they needed solidarity.

Similar views were held in Hanoi, the only difference being that the North Vietnamese could not demonstrate their disappointment so publicly because they were vitally dependent on Chinese supplies.

In his anti-American encyclical offering all peoples of the world assistance in the struggle against "U.S. imperialism" Mao Tse-tung made not the slightest derogatory mention of the Soviet Union.

Mao's silence regarding the Soviet Union made observers sit up and think. Was it in fact to be attributed to the independence, an independence that should not be underestimated, of China's two peripheral states or even due to pressure from them?

In the days of Chancellor Adenauer and President de Gaulle there were times at which top-level talks between Bonn and Paris had a spectacular air and promptly gave rise to suspicion in the rest of Europe.

Recalling the Berlin-Rome axis Babelux in particular had fears of a similar pact between Bonn and Paris.

These days are long since past and Bonn government spokesman Conrad Ahlers can cheerfully talk of special relations and the success the institutional character of the half-yearly consultations held in Bonn in summer and in Paris in winter under the terms of the friendship agreement between the two countries has proved.

There is no ground for mistrust either. The Common Market Six stand only to benefit from France and this country taking every opportunity of harmonising the moves of their respective governments.

As in large families close contact between active members of the family helps to hold the entire clan together.



After the French-Federal Republic talks in Bonn Chancellor Brandt (right) gave a lunch for the French President, M. Georges Pompidou (centre), the Federal Republic Foreign Minister, Walter Scheel, was also present. (Photo: dpa)

Propagandistic celebrations of the solidarity of East Asian Communists to mark the twentieth anniversary of the outbreak

United States but also first preparation for the political challenge represented by Japan.

Tokyo's foreign policy bears witness to increasingly anti-Chinese tendencies. Since the Japanese traditionalists have proved largely successful in their psychological preparation for greater defence efforts by way of "moral armament" they have been bringing pressure to bear in favour of rearmament befitting Japan's industrial potential.

In the past Chinese attacks on Japan have largely been dismissed as propaganda. At the present stage it is no longer possible to do so. Both countries are taking stands based on growing mutual distrust.

Japan's Foreign Minister forecast that

Unspectacular Bonn-Paris talks get much done

ween active members of the family helps to hold the entire clan together.

The latest meeting in Bonn between Chancellor Brandt and President Pompidou, attended not only by senior Ministers but also, and for the first time, by the politicians' wives, intensified this impression, particularly as Horst Ehmke, the Minister responsible for organisation, provided interim interpreters to help in lengthy discussions.

Though less in the public eye, extremely practical policies are being pursued by both governments and could at some future date prove most useful in day-to-day European affairs.

They range from a European airport to the establishment of Franco-Federal Republic industrial concerns since, in M.

Pompidou's opinion, the two countries should no longer allow the idea of competition to induce them to "wear each other out to the benefit of others."

The Bonn encounter made it clear once and for all that the "admiration for the courage and sense of reality" with which Willy Brandt pursues his policy towards the Eastern Bloc is not a Pompidou formula papering over differences of opinion.

Paris unconditionally approves of the line taken provided that its rights as one of the 1945 Allies in respect of Germany as a whole and Berlin are not encroached on.

In their own interest Chancellor Brandt and Foreign Minister Scheel assured their guests of their respect for the Allies' rights and determination to prevent any erosion of these prime rights.

M. Pompidou accepted this assurance. Despite Opposition Jeremiads the spectre of a French veto of Bonn's plans on renunciation of the use of force would seem to have been banished for all time.

(Frankfurter Rundschau, 6 July 1970)

Hair colours

Four out of ten women in the Federal Republic are not content with their natural hair colour and use rinses, tints, and dyes, accordingly, to a large hair cosmetics firm, which undertook a survey of a wide cross-section of the public.

It is particularly redheads and women with very fair blonde hair that are discontented with their natural colouring.

There is no appreciable difference in the number of housewives and career girls who reach for the dye bottle.

Seventeen per cent of women in the country change the colour of their hair with tinting of some kind, ten per cent with a direct colour change and 15 per cent alter the colour with a rinse of some kind.

The women who apparently considered Nature's chosen colour for their hair the most attractive are blondes and dark-haired women. But medium shades, such as dark blonde are not found so attractive.

As age increases so does a woman's desire to change her natural hair colour. In 1969 forty-seven per cent of women between the ages of 45 and 59 decided to dye their hair. But only 32 per cent in the 14 to 24 age group did so.

The number of women who dye their own hair at home has, according to the statistics, doubled since the early sixties. As a result of this the hairdressers' share of the business of dyeing dropped by ten per cent. (Kölnischer Anzeiger, 10 June 1970)

The award also went to Klaus Löwitsch for the lead male role in *Girl by Force*.
(Frankfurter Rundschau, 24 June 1967)

■ EDUCATION

Problems of children's homes discussed in Frankfurt



I can't manage my boy any more, he'll have to go into a home!" Social workers and educational advisers have often heard this and similar complaints for mothers and fathers.

It is understandable that parents see no other way out of this situation. But what cannot be understood is that the authorities here are all too ready to send difficult children to a home.

"Bringing up a child in a home is the most extreme intervention in his life and moreover entails the greatest costs," one delegate said.

The conference in Frankfurt was organised by the International Society for Education in Homes.

The organisation gave the conference the provocative title "The poor state of education in homes - basic requirements".

The time for a discussion of this kind was well chosen. UNESCO has made 1970 the International Education Year.

There are many explanations as to why children and adolescents become difficult. But the remedy used all too often was described by the bitter verdict of one woman attending the conference.

She summarised her experiences by saying, "I often have the impression that education in homes is regarded here as a sovereign remedy, although there are many other possibilities."

Another woman attending the conference immediately mentioned one of these possibilities. "Better kindergartens with small groups in which difficulties that crop up can be recognised at an early stage would be one possibility of avoiding education in homes. Parents too could be consulted in time," she said.

On woman social worker said that a child's mental distress was often provoked by society itself. "When an unmarried or divorced mother has to stay at home with her child she has to live off social welfare. Does this not present an opportunity of providing greater help? Children who change homes regularly from infancy prove very difficult to bring up."

It is obvious that a continual change of homes does not exactly strengthen a child's mind. Educationalists also realise many of the difficulties criticised prove to be mentally conditioned. But the public still has too little understanding for this sort of person.

The question was asked why it was so difficult for society to accept physical though not mental infirmities. This was immediately answered by a voice from the auditorium: "Because of moral reasons. They are bourgeois after all!"

It became evident in the discussion that people here regard mental difficulties as something they are not. "People here believe that anyone can suffer a physical ailment - but when someone goes to a psychiatrist people believe that he is mad!"

Unfortunately many young people are put into homes who only need help.

longer get along with their parents. There is a lot to do on the approaches to this problem. Parents must often be made clear of their relations with their children. Talking with parents is one of the most important tasks in this field.

An interesting contribution to this subject is provided by a book by Bruno Bettelheim, *Love alone is not enough - Bringing up emotionally disturbed children*, published by Klett of Stuttgart.

This work, translated from English, describes everyday life at school in one these homes.

Many examples show how the child has become mentally disturbed, how they speak and the extent to which parents are responsible.

In his foreword, Bettelheim writes, "The frequent advice that people should love their children is well intended but is useless when parents try to act according to this without having the correct or genuine emotion. We have met many children who took it on when their parents practised the prescribed forms of behaviour for love toward their children as they had the feeling that this love was not genuine."

"Mothers who let their children have everything to show neighbours what good mothers they are often harm their children as much as if they were indifferent towards them."

"The child cannot understand that his mother is acting out of fear or anxiety. (An ideal mother never reacts as irascibly as a mother)." "The child feels that it is being used in one way or another and indulgence shown towards it to impress others is not indulgence. In practice it hurts the child as it is being misused for its mother's purpose."

The social welfare centre in Frankfurt has concentrated on the problem of how to mediate between children and parents without immediately resorting to sending the child to a home.

Franz Palm suggested the establishment of small hostels for young people who wanted to live away from their parents for a while.

This hostel could do a lot towards relaxing the tense atmosphere at home. The social welfare station has found that young people often come along and admit to having difficulties while parents are more reserved.

Leaving home

Bäcker Brüstel, head of the family welfare department, said that the main problems were breaking away from the parental home, the increase of nervous disorders and finally marital difficulties concealed behind childhood conflicts such as bed-wetting.

Her solution to this is to devote time to the parents and go through problems with them.

Ideas and plans for a new start in this field already exist.

Social workers at the Frankfurt conference summed up everything in one sentence: "By expanding public aid, bringing up children in homes can be limited to those cases where this is the only means of help." There are many chances of solving the problem. They must be used.

Martina I. Kischke

(Frankfurter Rundschau, 13 June 1970)

Reform of music studies in Hamburg

Music teachers in Hamburg will be trained according to principle of "study made to measure" now that the initiative of Hamburg, the young head of the music department at the city's Conservatory, has borne fruit.

In the reform of musical studies by Hermann Rauha, it is proposed that the demand that future students prove their academic worth taking a second course of study.

This condition means that students here at present have to pass many as seven or eight years at university. Students should have a greater freedom of choice instead of the prescribed curriculum they have to work to a plan.

After the initial two years of study, the basic techniques of playing an instrument, students will be asked to decide whether to take a science subject as a subsidiary in the next two years.

When basic study is over students still have to take two compulsory mental subjects (piano and instrument) and voice training.

But they will also have a choice between a varied selection of subjects: solo singing, training to play an instrument, conducting, chamber music, accompaniment, performing old and church music, jazz, rhythm and composition and music theory, history of music and teaching.

The three branches mentioned at the end of the list will bring musical study to a standard which enables them to take a university if they wish to take a university. The first two branches will be offered as a choice of study. The third branch will be a normal examination, they will be written a dissertation.

More emphasis will be placed on musical education and musical work. The main part of training in music will be the interpretation of musical works.

The aim is to have a teacher who is able to analyse a composition not only by ear but also to be used in laboratory experiments. This sociologically and according to criteria of current psychology and musicology theory.

Music teachers in future will be able to listen to a piece of music and estimate to which it reflects social conditions or was able to influence them. They should know the opportunities and limitations of listening in a visual era.

Musical and educational science media studies, the examination of music to receive the name Hanfium after the visual communication through radio, gramophone record, tape and picture cassette.

If a pupil is to be subject to the daily musical consumption and to develop a critical judgement, his knowledge must be acquainted with the effect and influence of the mass media.

One of the main thoughts behind the reform of musical studies is the education of the whole course. Students should be able to indulge in their favourite subjects and the branches which they show most talent.

Students should be allowed to choose various subjects when they show special knowledge in that field. And they will be able to have a free choice of teachers and examiners.

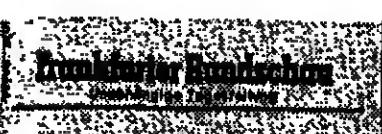
Hamburg is the first city in the Federal Republic to combine the musical training of high school teachers and secondary elementary school teachers.

This means that two leading positions in the Conservatory and in the University proper will be the domain of one person from the next winter term.

(DIE WELT, 12 June 1970)

■ SCIENCE

Behind the scenes at Karlsruhe's Transuranic Institute



Outside of Karlsruhe only a few experts have heard of the European Transuranic Institute and know its function. Even the term transuranic is not known to most people as it rarely crops up in general education.

Glenn T. Seaborg, the discoverer of fissionable transuranic substances, has defined them as chemical elements with a higher atomic number than that of uranium, the heaviest naturally occurring element.

Transuranic elements are synthetic and have to be produced by element conversion. The starting point is naturally occurring uranium.

The atomic number of an element is determined by the number of protons in the nucleus. The figure for uranium is 92. Elements with a higher atomic number are then transuranic in much the same way as Aristoteleia "metaphysics" stood "after physics" - though admittedly for didactic reasons.

A "European Transuranic Institute" may cause many readers confusion as the whole field of research was not opened up until the beginning of the Second World War.

Seaborg discovered plutonium in 1941, a substance that was to receive disastrous prominence.

Nepthunium, with the atomic number 93 - one above that of uranium - was discovered by McMillan and Abelson as early as 1940 while Americium with the atomic number 95 and Curium, 96, were discovered in 1944.

All this happened when the first atom bombs were being constructed. There was such a strict veil of secrecy that plutonium was at first called copper which was all right until genuine copper had to be used in laboratory experiments. This was then called "honest to God copper".

This anecdote from the early days of plutonium research shows why a person studying physics or chemistry during the Second World War, learnt little about transuranic elements.

Element 105 has now been reached. Nations are now arguing who first discovered it. It depends on the outcome of this whether the latest synthetic element will be named after the name Hanfium after the Nobel Prize winner Otto Hahn.

Arguments of this type often have a political admixture - usually West versus East. Otto Hahn is the Western favourite. This should have made the term "transuranic" a little more well-known in public circles than it was before.

But this quarrel has left the staff of the European Transuranic Institute in Karlsruhe quite indifferent especially as this is, in the sense of East-West competition, a Western European Institute subject to the European Communities in Brussels.

The European Community's joint atomic research bureau has four research stations - in Ipsa (Italy), Patten (Netherlands), the Central Bureau for Atomic Research in Geel, Belgium, and the European Transuranic Institute in Karlsruhe.

Research work began in the Karlsruhe Institute, situated in the suburb of Linz, in 1964. In 1966 the seventeen staff were put into operation.

Since last June the head of the Institute has been Professor R. Lindner who previously worked in Ipsa. He was once a professor at Brunswick Technical University.

The atmosphere of the Institute is completely different from that of our Max Planck Institutes, university atomic research departments or industry's physical research laboratories.

Professor Lindner believes that his Institute takes up a position between that of industry and the universities. People there do not like to speak of initial research (though this is done in the production of heat or diffusion, for instance) but prefer to use the term basic research.

Experiments take place at the Institute but there is also production. This is not on an industrial scale it is true, but it is extensive enough for it to have nothing in common - thank goodness! - with the old concept of dignified research.

The Institute also carries out general services, such as advising industry on technical matters, working on safety problems and investigating cases of damage.

Everything there is European. French is not far off becoming the lingua franca of the Institute, French food lives up to the canteen fare and a Frenchman, Dr H. Mattys, was director of the establishment for nine months.

Originally it was intended to appoint only foreign directors for all four research stations. But just over a year ago Professor Lindner moved from Ipsa to Karlsruhe.

Strict safety measures

Working with transuranic elements is the same as working with alpha, beta and gamma rays. Scientists and researchers in Karlsruhe deal mainly with atomic fuel containing plutonium such as plutonium oxide, plutonium carbide and plutonium nitride as well as with the transplutonic elements americium, curium and californium.

Because of this safety measures are not only strict but tedious and include the 350 glove boxes in the 25 alpha laboratories.

All work with plutonium has to be carried out in these synthetic glove boxes that offer adequate protection against non-gamma active materials.

All boxes are connected with a gas rotation system. For reasons of safety, pressure in the laboratories is always kept beneath that of the outside atmosphere.

Research into Upper Rhine barrages at Karlsruhe



the barrages would cause erosion of the Rhine bed and whether this could be prevented by sinking a layer of coarse gravel.

During these investigations the Federal Institute has been working closely with French colleagues, Dr. Stadler said.

The construction of the two barrages on the Upper Rhine is part of a joint agreement between this country and France.

(RHEIN-NECKAR-ZEITUNG, 23 June 1970)

Butenandt calls for more academic exchanges in Europe

At the annual general meeting of the Max Planck Society in Saarbrücken Professor Adolf Butenandt, the Society's President, said that one of the most important functions of the Society in future would be to increase the exchange of scientists between European research establishments.

The beginnings are already there. 1,850 scientists are employed regularly by the Society. Some 2,000 grant-holders, candidates for doctorates and diplomas, including 700 foreigners must be added to this figure.

What is particularly urgent, the professor said, was greater cooperation in the field of molecular biology. He suggested establishing a central European laboratory for this sphere of research. This would then correspond to the Atomic Physics Centre in Geneva.

The Saarbrücken discussions centred not around the considerable scientific



achievements and plans but on questions of basic principle.

Professor Butenandt warned against fixing the Max Planck Society within binding state systems of research planning.

The active research planning demanded by the Science Council would bring with it the danger that the Society's freedom of initiative would be limited. A comprehensive plan must define those areas where the Society could carry out and be responsible for its own research.

Professor Butenandt spoke cautiously of plans to finance the Max Planck Society within the total education budget with more money coming from the central government. At present the Federal states contribute half of the annual budget of 270 million Marks.

The Max Planck Society would have to adjust to this new regulation and try to ensure that its own development was not endangered by the limits fixed in long-term planning. It would also have to be more flexible in its expenditure.

In the past twelve months there have been violent debates about the participation of the academic staff in the running of the institutes.

Delegates at the Saarbrücken conference debated the proposals of a commission specially set up by the President to investigate this subject.

These proposals concede scientific staff no more than joint consultation. They would leave decision making to the "academic members", the appointed directors and heads of department.

But the staff want a share in the decision-making in questions of research aims and personnel appointments.

In his formal address, Professor Butenandt stated that final responsibility could only lie with one person, the director, or a board of directors appointed by the Max Planck Society.

But the Society's committees in Saarbrücken seemed to be more responsive to the wishes of the academic staff and were prepared to give their delegates access to the reform commission that otherwise consists only of members appointed by the President.

Georg Hartmut Altenmüller

(Köln Nachrichten, 16 June 1970)

■ THE ECONOMY

Unions and management seek dampening measures

A glance at all the comings and goings that are leading up to the round of talks in the autumn between employers' and workers' representatives in the metal industries to decide new wage structures shows that there is remarkable unanimity on both sides of the fence about one thing — employers' associations and unions alike are condemning the present state of the economy.

Both sides have hoisted warning flags about drastic measures to dampen down the economy. Both sides fear that instead of a normalisation of supply and demand we will experience the onset of another bout of uncontrollable recession.

The number of new orders coming in lags behind the level of production. According to the Confederation of Federal Republic Trade Unions (DBG) this results from the fact that a number of companies, particularly foreign ones, put in orders early in expectation of a Mark revaluation that did not come as quickly as anticipated.

Latest figures released by the steel industry, which once again produced more rolled steel than was needed to meet new orders, seem to bear out this theory.

Older industrialists remember that after the world economic crisis that followed the Wall Street crash in 1929 a full decade was needed before industrial turnover reached the 1929 figure and this was despite the fact that the National Socialists were carrying out a programme of rearmament.

Under the cooling-off of the boom to be a

normal event following a period of heated activity — it simply follows all the rules in the text book.

After an economic high comes a transition period when, despite the fact that the number of new contracts being placed is declining, prices remain high.

The solitary cry for a wage freeze has found little enthusiasm among leaders of the employers. Anyway, while advertisements are still appearing in newspapers offering jobs to certain skilled workers at monthly pay rates of 1,300 Marks and more a wage freeze seems practically impossible.

The agreement of both sides of industry on economic affairs is, however, confined to the basic question of whether the government should apply additional stringent measures to dampen down the economy.

The trade unions want to take advantage of the present phase of the economy. Their aim is to use it to change the structure of the present division of incomes and wealth so it applies to industrialists and employees — that is to say they want a larger share for the workers.

On the one hand industrialists, faced with crippling interest rates, would fight tooth and nail against any measures to prevent them from financing their investments with company profits.

On the other hand, the unions have no objections to a temporary increased tax on profits which could be achieved by limiting the time set aside by industrialists to write off depreciation.

As far as they are concerned the State

can quite willingly collect taxes in the largest coffers at its disposal. They only condition they would impose is that the government should give guarantees that this money would be used at a later date for infrastructure measures, that is to say social welfare measures to benefit members of the general public.

Trade unions are not out to deprive industrialists of capital resources. Indeed the money raised by the State for accumulation of capital wealth among the working population should be taken from this source and made fluid again as capital from external sources under certain reasonable conditions.

In addition the trade unions do not regard the recent wage and salary increases of twelve per cent and more as a sign of wage inflation, but prefer to view them as a justifiable trend following the slow motion in wage increases during the period when the boom was at its height.

They can make the same claim of employers that employers once made of them, for instance the plea made to *Industriegewerkschaft Metall* (the metalworkers' union) in 1967 that if industrialists and workers are to breakfast at the same table they must first work on a cooperative basis.

Industrialists are not denying that up until 1969 productivity increased at a greater rate than wages and salaries. They are also prepared to grant to the trades unions that this should now be reversed. But understandably they only wish to do this for as long as their capital is not cut by it.

Although many harsh things have been said the relationship between employers and trades unions has become more matter-of-fact, except on the question of worker-participation in industry.

The DGB makes the claim that it is the only trade union organisation in the world that in its economic policies for 1969 kept itself within the realms of what is economically feasible.

(Frankfurter Neue Presse, 15 June 1970)

Legislation to hamper tax evaders proposed

from the various "subsidiary" companies here and transferring them to headquarters in the tax oasis.

In the Federal Republic income taxes can be as high as fifty per cent, but in the tax oases they are considerably lower. For this reason countries such as the Bahamas are particularly attractive as headquarters for investment companies.

In Switzerland many lawyers put their letterboxes at the disposal of foreign companies. One such lawyer may represent as many as a hundred firms.

Hesse's Finance Minister is keen to summon income tax payers, the whole of the middle-classes and also those tax refugees to the fiscal cash desk. His main concern is to make the large companies pay up.

In order to prevent the damage to tax justice done by these dodgers the draft legislation includes measures that could turn the tax oases into barren lands as far as tax evaders are concerned.

In future taxpayers would be made to supply all information relevant to their taxation level. Up until now the burden of proof has lain with the tax officials.

Some firms have even been able to dodge taxes in the country where they operate and the country where they have their bogus headquarters. The tax returns they have given in the one country have differed from those supplied in the other country.

The new legislation would ensure that a company operating in more than one country would have to supply the same

figures and information to the tax offices in both countries.

Transference of company headquarters to a tax oasis is to be disregarded by Federal Republic tax offices for five years.

Foreign concerns with holding companies employing people from this country must also be apprehended if they are created to invest profits across the border.

In order to cut down foreign and inland tax evasion the Hesse Finance Ministry is recommending a break with a tradition that has lasted for centuries. It has been suggested that there should be limitations imposed on the secrecy of bank accounts, which has always been regarded as "sacred".

His solution to this problem is for legislation to be imposed forcing a taxpayer to agree to allow the Finance Office to make direct enquiries to his bank "manager" about the state of his account.

Only when the taxpayer believes that by giving such information innocent parties could be harmed should he have the right to refuse to give this permission to his bank and the Finance Office.

Lang dismisses claims that his proposed legislation would lead to a similar situation to 1932 when a tax was imposed on refugees from the Reich. This legislation was later used by the National Socialists to obtain foreign exchange and to hound the Jews.

Lang said that it would be possible at any time for companies to set up branches abroad and transfer capital there. He added that owners of large stores and artists would still be able to spend the money they made in other countries.

Albert Bechtold

(Münchener Merkur, 20 June 1970)

IN BRIEF ...

Hungarian trade

Trade between this country and Hungary has been boosted by certain import restrictions having been lifted.

In Bonn recently our Ambassador Egon Emmel, from the Office and the head of the Hungarian trade mission in the Federal Republic, signed a list of commodities that would be permitted for the coming year's Federal public-Hungary trade. Around this list was in fact a demonstration flight cent of the articles so far excluded from the twin-motor Dornier Skyservant, a plane that can accommodate twelve passengers and almost one and a half tons.

These agreements with Hungary are similar to those already concluded with Czechoslovakia and Poland. They still have to be ratified, however, by a Commission in Brussels.

(Kiehl Nachrichten, 22 June 1970)

Aid East Bloc

Richard Eppler the Development Minister has called for the East Bloc to be included in the organisation's overseas development aid.

Speaking at a press conference on the occasion of the International Development aid congress in Heidelberg, Eppler said that Third World countries should on no account be allowed to off one contributing country.

One conclusion reached at the conference was that the East Bloc countries should enter into a "dialogue" with all the industrialised countries.

Third World countries should be their benefactors to regular meetings. This is precisely the reason why the presented at these talks. Some East Bloc nations had already expressed their interest in this idea.

(DER TAGESSPIEGEL, 23 June 1970)

Overseas volunteers

In early July a further 72 Federal Republic overseas aid volunteers will leave these shores to work in Africa, Asian and Latin America.

The *Deutsche Entwicklungszusammenarbeit* (voluntary service overseas organisation) in Bonn said that when the had left to commence its duties the number of volunteers from the country going to work in Third World countries since 1964 would have reached 2,200.

(Hannoversche Allgemeine, 23 June 1970)

Cash to Turkey

This country will in the course of the year give financial aid amounting to 175.5 million Marks to Turkey to help the Turkish economy. The money will be used for expansion programmes.

Commenting on the Federal Republic Turkey negotiations held in Ankara between 8 and 16 June the Federal Ministry of Economic Affairs said that the million Marks of this sum was to be paid to public authorities in Turkey.

A further 80 million Marks destined to pay for imports required by Turkey, private and public projects, will be received by the Turkish government.

(DIE WELT, 27 June 1970)

■ AVIATION

Dornier's versatile Skyservant fills a much neglected gap



Chief pilot, Frank Tuytjens, a Dutchman, steered the plane out over the North Sea. His passenger sitting in the cockpit's trade mission in the Federal Republic thought no ill of this. Presumably the pilot wanted to show him how beautifully the plane handled over water.

This was in fact a demonstration flight cent of the articles so far excluded from the twin-motor Dornier Skyservant, a plane that can accommodate twelve passengers and almost one and a half tons.

This is a marvellous plane with a small, boxy body and a weight of three and a half tons. On this demonstration flight there were, however, no other passengers on board.

They would have thought that their flight captain had suddenly blacked out or taken leave of his senses if they had been there. For pilot Tuytjens had flown over the water simply as a safety measure, just in case something should happen, while he was putting the plane through its paces like a sky-acrobat.

In the heavy Skyservant he had already looped the loop, but he spared his passenger this manoeuvre, since the man in the cockpit's seat was a rank dilettante as far as flying was concerned and was more at home in journalistic pursuits.

It would be a valid point to ask what is the point of putting such a machine as this through an aerial ballet. After all it is not designed, as a sporting plane, to be a Skyservant, intended to be a packhorse with wings, a machine for use in the bushlands, able to take off, fly and land in the most extreme conditions.

This is precisely the reason why the machine has turned it into a ballerina. It is precisely because this machine will be relied upon to perform under unfavourable conditions that it is really put through its paces when conditions are fine.

It is very comforting for a pilot to know just what can be done with his machine, even though he may never want to do it.

Certainly after my test flight in the Skyservant I would be prepared to trust it leave these shores to work in any conditions under any flying conditions.

This is not a plane that conforms to the usual requirements of a private craft: more than ever, rather than ever, higher than ever, and we must add: more passengers than ever.

The Skyservant has no claim to be a smaller version of the epitome of modern aviation: the Jumbo Jet. At Dornier the Americans say: "The whole world is talking about the Jumbo — we are not."

At Dornier they are talking about the Jumbo opposite, the kind of small-to-medium range but can land on any stretch of concrete, grass or sand, and in fact that could possibly pass for a landing strip.

This is one type of plane that has not been on the market so far, and with the Skyservant Dornier have gone a long way in filling the gap. The new plane should be in all over the world where there has been a singular lack of this class of aeroplane.

The most striking example of this is in America, the world's most successful aeronautical nation, where the international airport and Baltimore airport is carried out by Skyservants.

The fact that the United States of America should buy and fly aircraft from the Federal Republic is something in the

way of a technological marvel. Economically speaking it is almost incredible.

So it is not surprising that the same type of aeroplane is used in fifteen other States. With various different types of equipment, fitting it out for the most diverse of duties it can be seen as far north as Alaska and Canada and down in the equatorial zones of the Congo and Central Africa.

It is also to be found in the southern hemisphere, South America for instance, and needless to say it is getting very wide usage in the Federal Republic, its "home country".

The solution of the miracle that this machine has wrought, despite being a dwarf among giants, is quite simply its simplicity.

Compared to the sleek jets that fill the skies in this fast-moving age it is undeniable that the Skyservant is no beauty. But when it is considered closely, beauty is very much skin-deep in the technological world and plays little part in success or failure — the Volkswagen beetle is not the most beautiful car ever designed!

Anyone who has an eye for machines will see the characteristics of the Skyservant clearly, for, after all, motorised vehicles have a character and personality written all over them for the expert eye to see just as much as human beings have.

Robustness stands out a mile, reliability is written all over this machine. This is a "bird" that will go out in weather that is not fit for dogs, as it says in the prospectus for the Skyservant.

The Skyservant is an obvious, significant, and intentional step backwards. It harks back to the days of the biplane, the 34, for instance, in which Grosse became the first man to fly across the Atlantic in an East-West direction.

Basic ideas from those days that remained at the ideas stage because technology was not up to realising them, can now be put into practice. Endowed with all that modern technology can offer, the Skyservant looks like a grandma and performs like a teenager.

The grandiose look in aeroplane design is quite the reverse of the trend in fashion — it does not imply the discomfort and



Dornier's Skyservant

(Photo: Dornier)

hindrance caused by the max-style, it implies rather greater flexibility and manoeuvrability.

There is no clambering over ladders to get in and out of this machine and to load and unload it. There is no need to erect scaffolding and platforms to refuel and overhaul the Skyservant — this can all be done comfortably and conveniently from ground level.

Repair work is not hampered by having to plough through unaffected parts of the machinery, since all important components are easily accessible. They fix in place by means of snap-in attachments and can be reached easily by unlocking them and swinging them out.

External damage is easily made good by means of readily obtainable spare parts. The design of the machines is such that as many parts as possible are interchangeable, so that repair costs can be kept to a minimum.

Dornier has kept the flying world what the Volkswagen beetle did for the motoring world. Not only cars but planes too are only as good as their after-sales service, their maintenance and repair facilities.

The basic construction principles of the Skyservant conform to this aim: There are four completely separate stages of production:

- *1. Power, which includes the motors and fuel tanks, mounted on a so-called under-wing.
- *2. Fuselage, which is in three

sections, the cockpit, the passenger of freight section and the tail section.

*3. Wings.

*4. Tail and steering gear.

Like the VW beetle, too, there has been gradual progress made by Dornier culminating in the Skyservant. They started with a single-motor short-take-off plane, the Do 27 of which 680 were sold. They graduated to a twin-motor short take-off plane, the Do 28 which natted 120 sales and now the Skyservant — orders have been placed for 200 and forty have already been delivered.

Dornier have a unique place in the history of postwar aviation in this country (ten years of plane-building prohibition must be taken into account).

Planes built by the family concern of Dornier are the only short-take-off planes designed and built in the Federal Republic that have enjoyed international success.

They have achieved this success despite country tend to show to aeroplane manufacturers, in contrast to, say, the Americans, who have a fairly free hand financially speaking.

American aircraft manufacturers, supported by credit from the government and banks, are able to sell planes on hire purchase contracts, sometimes of up to ten years. Federal Republic firms generally have to demand a 33 1/3 per cent deposit immediately upon sale.

Despite this, the acid tongues that speak of Federal Republic aircraft manufacturers as the world's greatest toy-planemakers are way off the beam.

Fifteen years is a relatively short period of time for a section of industry to find its feet after a ten year forced lay-off and this country's aircraft industry has developed at a staggering rate.

Apart from the great successes of Dornier, there are four other developments in this country's aircraft industry that promise to prove successful.

The sporting plane *Monium* manufactured by Bölkow is capable of refined aerobatics and has wings that can be dismantled. Then there is the helicopter Bo 105 which has an unjointed rotor made from glass-fibre-reinforced plastics. This also comes from the Messerschmitt-Bölkow-Blohm group.

Also worthy of mention is the intercity plane VWF 614 with motors set on top of its wings, which is manufactured by the Verelagte Flugtechnische Werke in Bremen and Fokker. And last but not least the European Airbus A300 B which will be built jointly by the Federal Republic and France.

Nevertheless the only company that is managing to conform to a great extent to the first economic requirement for the plane-building industry, that is to say successful series production, is Dornier.

From the point of view of those who fly in, or send their freight in, planes it

Continued on page 12

Latest figures on Federal Republic merchant marine published

Excluding fisheries and coastal navigation companies there are 176 shipping companies operating under the Federal Republic's black, red and gold flag. On 1 January this year there were 1,080 oceangoing vessels registered in this country. These were of all shapes, sizes and kinds.

Since the end of the Second World War around 12,000 million Marks have been invested in this country's merchant marine.

These figures were published recently by the Federal Republic Shipping Companies' Confederation. The report, entitled "Data concerning Federal Republic Shipping" was published in Hamburg.

The data showed that in 1968 (more recent figures are not yet available) the cargo volume of the Federal Republic merchant fleet was 115 million tons.

The report states that the chief spheres of transportation were in the import and export trade and in so-called entrepôt that is to say from one foreign port to another.

Freight carried by this country's merchant marine has been steadily increasing. At least one fifth of this is transported on

liners. The other four-fifths are carried on tramp and in tankers. What is remarkable is that almost a half of the freight proceeds comes from liner traffic!

Income from passenger traffic has not in the past two years been able to hold its own — the share of total income brought in by passenger traffic is steadily dropping.

In 1939 Germany had a merchant marine totalling 4 1/2 million gross register tons. The total tonnage of the world's shipping was 69 million gross register tons and Germany was the fifth largest shipping nation.

By 1969 the world's total had reached 211 gross register tons. The Federal Republic had seven million tons of shipping, giving it ninth place in the world.

Our liners cover the world and its waterways! We put in to more than seven hundred harbours. Federal Republic tramps, tankers and refrigerator ships show the flag on all the world's oceans.

Passenger ships from the Federal Republic not only cover the North Atlantic run, but are also busy on cruises all over the world.

(Kiehl Nachrichten, 22 June 1970)

■ AUTOMOBILES

VW Porsche, forerunner of a new Beetle?

PRODUCTION LINES RUNNING NONSTOP

Less than a year after its first showing in August 1969 the VW Porsche is running off the assembly lines at full pelt. Karman of Osnabrück are assembling 120 VW Porsche 914s a day.

They boast the same four-cylinder air-cooled engine as the Volkswagen 411 E, a 1,700-cc, eight-horse-power motor with electronic fuel injection, and cost 12,600 Marks.

A further thirty bodies a day are sent by transporter to Zuffenhausen, Stuttgart, where they are fitted out with Porsche components to become the VW Porsche 914/6 with a two-litre, 110-horse-power Porsche engine that together with other extras increases the price to 20,000 Marks.

From the point of view of VW Porsche Sales, a joint subsidiary of the two firms, the VW Porsche 914 is the possible shape of things to come, adopting for an everyday sports car a number of technical refinements used in the racing world.

The 914's main competitor, the Opel GT 1900, also costing roughly 12,000 Marks, has been an astonishing sales success because, no doubt, of its exciting bodywork. In contrast the engine and other mechanical components of the GT are tried and tested.

In the case of the VW Porsche the immediate subject of motorist debate is the engine, mounted immediately behind the seats and unquestionably the major technical detail. It took this model to make the centre-mounted engine popular.

At bottom both models can be directly compared. Both are pure two-seaters, accommodating a third, slender adult with the provision of a third seat and only for short periods.

On luggage, the very next consideration, the 914 and the GT differ considerably, though. The Opel's luggage space is a flat surface behind the two seats. On longer holidays couples are going to have to make agonising choices about what not to take — or else fit a roof rack, which would be rather a pity for a car of this kind.

The VW Porsche centre-mounted engine, on the other hand, cleared the way for using both bonnet and boot as luggage space, setting new standards for sports models. It accommodates as much



Frankfurter Rundschau
Diebstahlgefahr: Volkswagen

luggage as the Fiat 128 — and that is more than enough for two people.

VW Porsche buyers can also forget the old Volkswagen rule of thumb always to pack something into the front luggage compartment to serve as a counterweight to the rear-mounted engine and so improve road-holding and resistance to side winds.

As far as the VW Porsche is concerned it is neither here nor there whether luggage is stowed at front or back. The wind can blow as much as it likes too, and all by virtue of the centre-mounted engine.

It would, perhaps, better be described as a back-seat engine, since it occupies the space which in other sports cars, the Porsche 911 for instance, is reserved for the rear-seat passengers who can, at a pinch, be accommodated.

In return the centre-mounted engine is an almost ideal design feature when it comes to providing adequate distribution of weight on the drive wheels (as with the rear-mounted engine) and ensuring good road-holding (as in the case of the front-mounted engine, particularly with front-wheel drive).

With a centre-mounted engine the weight at the rear cannot drag during cornering. The overall centre of gravity is not so far back that by simple laws of mechanics side wind can do it relentless worst, either.

This may sound theoretical but it is fully borne out in practice. "It is like driving on rails," a hackneyed claim for many a car, is justified in the 914's case. Corners must be taken of enormous speed to get the car into trouble, even with the incomprehensibly slender standard tyres (155 SR 15s — 165s an optional extra, as in the case of the VW 411 E). Broader tyres would unquestionably further improve the situation.

The co-pilot hangs on to the door handle for dear life at speeds the driver does not give a second thought about. Which only goes to show that the Porsche design team went wrong with the seats. Odd when one bears in mind how neatly they have solved so many other problems.

The passenger's seat in the VW Porsche is anchored to the body. It cannot be adjusted and provides so little support to the side that it is unworthy of the name. Passengers spend most of their time slithering to and fro.

To judge by what has been said so far it would sound as though the centre-mounted engine were the be-all and end-all of road-holding. But it presents not only space problems but also noise problems, and substantial ones too.

In the VW Porsche you sit back to back with the source of noise, as it were. And since the engine is air-cooled noise is hardly the word for it in the relatively tiny VW Porsche interior.

At medium speeds and rev counts, in the 914's case eight in fourth gear on the autobahn, conservation is, in the long run, more trouble than it is worth. The same goes for radio entertainment.

This has to be accepted for what it is, otherwise longer distances become an acoustic torture. It is not the noise of the engine itself, which is so powerful that he feels he is perched right on top of the contraption.

This is not a drawback shared in principle by all centre-mounted engines, however. It is more the result of a combination of air-cooling and location immediately behind the seats, which together present the designer with virtually insuperable soundproofing problems.

This need not remain the case. How much more satisfying a quieter, water-cooled engine would be in such a thoroughbred sports model! From this autumn, when all is said and done, Volkswagen are to market their first water-cooled model, the K 70, taken over from NSU when the two merged.

The suspension is more too satisfactory either. In this the VW Porsche and the Opel GT stand comparison. Drivers of both breathe a sigh of relief on reaching smooth, modern roads and passengers in both feel more than can be to their liking that smooth roads are still the exception rather than the rule.

The Opel GT comes off the better of the two in that it has the more comfortable seats.

On autobahns that have seen better days the VW Porsche driver has no alternative but to grit his teeth and hear the bumps. Driving is still fun, though, because unlike the Opel GT the 914 remains on course while cornering on even the bumpiest of roads. The rear wheels stay right where they are supposed to be.

At this point there can be no mistaking the technical advantages of the VW Porsche with its cross-strut rear axle and engine weight on the rear drive wheels over the Opel GT with its straightforward rigid rear axle.

Relative safety could be assessed as follows: on good roads the Opel is good to very good, on poor roads, it is moderate to good; the VW Porsche is very good on all roads.

The best criterion for the safety of a car is whether it can be driven at maximum speed safely — a question that is seldom directly asked.

The 914's eighty horse power is usually too little power for the chassis' potential. The 914/6's 110 horse power is adequate, by no means too much. What better ratio between engine power and chassis potential could there be?

The VW Porsche makes the same demand on its driver as an old English roadster, though not in respect of engineering and quality. The 914 is soundly built, remarkably windproof (very little noise from this quarter) and following initial difficulties is now waterproof too.

It is well provided for in the shape of the Volkswagen service network too and its technical similarity with the 411 E serves to keep running costs down unless the owner happens to be personally responsible for damage to the expensive bodywork. The 914/6 presents no technical problems either, hitches have ironed out in years of Porsche 914.

The similarity between the VW 914 and English roadsters, a car that brings tears to the eyes of a fanatic and a bemused smile to the even the hardest-boiled realist, is a sine qua non of ownership. One adapts to the car.

You have to be keen to drive a Porsche. You have to enjoy the delights and peculiarities of, is for enjoyment through and through.

To buy it because of the headlights or the impression it makes on the neighbours is definitely a mistake. You have to like the VW Porsche because of its five-speed gearbox (a grade), severely jolt the device and even to change up or down once to play about with the battery so that it rather than too few, because only operates at half the normal voltage convincing solution to the for a while.

For motor vehicle electronics engineers presents, because of its quietness, this is part and parcel of day-to-day work. reserves of road safety (they have to expect their components to take a bend for the second time, encounter strains of this kind, worse even, not only better but also faster).

High tension can develop when a number of devices are switched on or adjusted. Up to 30,000 volts can escape from the ignition. Shorts are always possible and batteries can be wrongly polarized. It does happen.

This makes it all the more difficult to design and construct safe and functional electronic equipment for motor vehicles. This applies equally to the star of auto electronics, fuel injection.

Originally introduced hesitantly, electronic fuel injection is now available in ten models. One of the most striking examples of the results that can be achieved by means of fuel injection is Bosch's Jetronic device, which has boosted the performance of the VW 411 from 68 to 80 horse power and at the same time perceptibly reduced the amount of noxious gases in exhaust fumes.

Fuel injection has unquestionably been largely responsible for the success of the Volkswagen 411.

Although the Jetronic consists of roughly 300 components it is, in principle, relatively simple. Its function is to spray the ideal amount of fuel at any given moment into the intake channel and in front of the inlet valve.

Altering the amount sprayed in is possible provided that there is constant pressure ensure constant through-flow when the valve is open.

The amount can then be dosed by spraying fuel for a shorter or longer

■ TECHNOLOGY

Electronic fuel injection in a nutshell

There are people who try out their transistor circuits in the deep freezer, then subject them to a temperature of 160 degrees Fahrenheit (seventy centigrade), severely jolt the device and even to change up or down once to play about with the battery so that it rather than too few, because only operates at half the normal voltage convincing solution to the for a while.

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Altering the amount sprayed in is possible provided that there is constant pressure ensure constant through-flow when the valve is open.

The amount can then be dosed by spraying fuel for a shorter or longer

period of time. Amount is converted into a unit of time. The Jetronic so only needs a switch to open the valve for certain lengths of time. The control unit needs only to ensure a flow of fuel at the right time. The right time presents no problems provided the whole is linked to the distributor.

The amount of fuel sprayed into the inlet port is mainly determined by the air intake into the cylinders. The idea is, when all is said and done, to ensure an optimum mixture.

Air intake does not remain constant, however. External pressure varies and pressure in one tube falls as speed of flow increases. The faster the air, the less its pressure.

This law makes it possible to deduce the amount of air taken in from pressure in the intake, which is done by means of vacuum containers at the end of which a core presses into a coil in accordance with the pressure. Part of the distributor voltage is sent through this coil.

In simple terms it can be said that the voltage in the coil builds up a magnetic field, the strength of which depends on the position of the core, using up more or less power and so functioning as a brake.

If voltage falls the field collapses and returns the energy it has stored. Voltage thus falls less abruptly. As soon as it has declined to a certain level a switch flips but in the meantime exactly the right amount of fuel has been fed into the inlet port.

At very high revs a thinner mixture is called for. The rev count is already a known factor as far as the control unit is concerned since it registers tension from the distributor.

Part of this voltage is converted into a continual level. The more frequent the charges from the distributor the greater the steady voltage becomes. As a result the injection period is shortened and the mixture becomes thinner.

Cold-starting, registered by means of temperature feelers in intake air and radiator water is taken into account by the switching-on of an additional injection.

The real thing is, of course, a good deal more complex. The interaction of electronic components involves a fair amount of ingenuity. The idea has, however, been to provide a layman's guide to how electronic fuel injection works.

Charles Gauthier
(Hannoversche Presse, 20 June 1970)

Experimental tests of electronic fuel injection at the Bosch laboratories (Photo: Bosch)

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Experimental tests of electronic fuel injection at the Bosch laboratories (Photo: Bosch)



Talafunk's latest development — the television long-playing record

(Photo: AEG-Telefunken/Teldec)

Video records premiered in West Berlin

Video records, the latest addition to the family of gramophone records and tape recorders as audio-visual media, were premiered on 24 June in West Berlin's Telefunken building, just ninety years after another world first, Edison's phonograph.

Wafer-thin black foil in the shape of normal singles conjured pop stars, equestrian and football scenes, advertising and educational films in black and white on to the screens of long rows of TV sets arranged in front of the premiere audience, an assembly of journalists from at home and abroad.

The picture can be stopped and replayed as many times as the viewer is pleased to press the appropriate button.

The new discs will not be on the market until 1972, though, first in black and white and later in colour. The recording will be on one side only, last five minutes and the record will cost less than twenty Marks, the price of an LP now.

The playback device, which is connected to the serial plug of the TV receiver, will cost a further 500 to 1,000 Marks. These prices are mere speculation at the moment, however.

It took a mere five years to develop the video record. Four West Berlin electrical engineers, Eduard Schüller, Hans-Joachim Klemmt and Dr Gerhard Dieckhoff of AEG-Telefunken and Horst Redlich of Teldec, a subsidiary owned jointly by AEG and Decca of London, pulled it off by virtue of close cooperation and team work.

In so doing, AEG-Telefunken, board chairman Dr Gröbe noted, they had added to the list of major developments and discoveries in communications technology made by the firm over the decades, a succession including Professor Fritz Schröder's groundwork on television, Eduard Schüller's development of the first modern-style tape recorder and Professor Walter Bruch's Pal system of colour television.

After initial adventurous experiments and much to the team's surprise it was discovered that the research target could be reached not by means of magnetic storage, as had been assumed in view of the

extraordinarily high density of sound and picture information needed, but by mechanical means, as used in gramophone records.

Half a million bits (elementary particles of sound and picture information) are recorded on a square millimetre of record. This, at least, is the highest density so far achieved. A twelve-inch record can thus carry 3,000 million bits of information.

Gramophone records revolve at 33 or 78 rpm; a video record revolves 1,500 times a minute, transmitting 25 frames a second. The 1,500 frames needed for a minute of video record call for three kilometres of track.

On a gramophone record thirteen to fifteen grooves per millimetre of diameter is the normal density. The video record has 130 to 150 per millimetre on a PVC disc little more than a tenth of a millimetre thick.

Despite the extraordinary precision required for impeccable recording of such an enormous amount of information both recording and transfer to the matrix from which records can be pressed swiftly and inexpensively function as perfectly as the needle.

The needle is a minute diamond stylus a tenth of a millimetre in size. It is so precisely ground that a new process had to be developed. The methods used by diamond grinders were not accurate enough. As with a normal gramophone record the impulses transmitted from groove to stylus are converted into electrical impulses.

Despite the high degree of technical precision involved a video record-player is, it is claimed, child's play to operate. A record can be played a thousand times before any signs of wear and tear become apparent.

It will, however, be a couple of years before the first units make their appearance in private homes, making possible the arrangement of private TV shows — opera, pop, shows, fairy tales, education, current affairs and even advertising — whatever is wanted.

By 1973 there will be three and a half million colour TV sets at the ready as a potential market for the video record-player attachment.

Recordings cannot be made from TV or one's own film. For this a video recorder is needed. (Frankfurter Allgemeine Zeitung für Deutschland, 25 June 1970)

Dornier's Skyservant

Continued from page 11

should be stressed that Dornier's success is fully justified.

What use is it to travel from A to B in the fastest, smoothest and most comfortable jet if the journey from B to C, the other side of town, takes just as long?

Some cities are still not served by regular jet flights. So, for the busy man, the latest developments in showpiece planes are of limited interest.

For the sportsman, for whom flying is an experience, a visual and tactile one, providing a vast panorama view of countryside and the feeling of bumping through alpine peaks, the modern jet with its pressurised cabin and minuscule windows is no joy.

As Dornier chief-pilot Frank Tuijthens swept in to the runway at Oberpfaffenhofen airport near Munich and brought the machine down to an incredible low flying speed immediately prior to touchdown it was easy to see that the Skyservant is virtually a cross between a conventional plane and a helicopter.

(STUTTGARTER ZEITUNG, 11 June 1970)

Colour main attraction of 1970 Stuttgart radio show

Radio and TV were not represented at this year's Hanover Fair, this being a radio show year. The 1970 radio show is to open in Düsseldorf on 21 August and will last ten days.

It will be the fourth time since the end of the war that the radio show has been held in Düsseldorf and this will be the eleventh radio show since the Federal Republic was brought into being in 1949.

Without exception all manufacturers of radio, TV and recording equipment will be represented at Düsseldorf, providing the trade and consumers with an unparalleled opportunity of inspecting and comparing the entire 1970/71 production range in this country.

Acrylics, components and all manner of accessories will also be on show.

Colour television will be the main attraction. By the time the exhibition opens there will be an estimated nine hundred colour receivers on the market and the public will be interested in comparing the various screen sizes — 21 and 26 inch.

The 26-inch tube, marketed as Europa tube (to indicate that it is European standard size), is new this year. Wired and wireless devices to control colour saturation, brightness and volume enable remote-controlled armchair adjustment of the picture on the screen.

(Hannoversche Presse, 20 June 1970)

■ OUR WORLD

Federal capital's weather graded
'bad' by geographical survey

Hannoversche Allgemeine

Reluctantly Chancellor Willy Brandt, muttering something about the oppressive air, pushes the state papers he has before him aside, and looks out for a few minutes to the park of Palais Schaumburg, the Chancellor's official residence. There it is also very humid even in the shade of the tall trees.

Only in the cool of evening is it possible to enjoy what is considered in Bonn climatically the most favourable sector of the city, the Venusberg. Here stands the official residence, Chancellor Brandt must have suffered considerably having to work in the uncomfortable, almost tropical climatic conditions that prevail in the capital of the Federal Republic.

The weather is such a frequent topic of interest for people in Bonn that Dr. Hubert Emonds, a geographer, has written a doctorate thesis on the subject of Bonn's climate.

This scientific study is so detailed, the various climatic differences in the various parts of the city are so clearly outlined, that officials can be forgiven for thinking that what was once an oppressive part of the city, weatherwise, is now something quite different, and in fact could be considered quite healthy.

What meteorologists indicate on their weather maps with marks and signs distinguishes in Bonn from Adenauer to Willy Brandt have known almost by instinct. This is no longer looked upon as anything particularly noteworthy in the Chancellor's office.

It turns out that there are bad aspects of climate on the site where the Palais Schaumburg stands, not far from the Rhine. The signs that the weathermen would place on their map for the Chancellor's office include indications that the area is "extremely humid, prone to sultriness and likely to be covered in fog and mist."

New maritime museum to be built
in Bremerhaven

From money obtained by a fund to set up a Federal Republic neoclassical museum the venture is now ready to get under way. The central maritime museum will be opened in Bremerhaven.

The Federal state of Bremen and the city's municipal authorities as well as local authorities in Bremerhaven have given a great deal of their time to this project and the fourth version of the scheme is the one that has finally been accepted after three previous plans were thrown out as unsatisfactory.

Construction costs are expected to be around 12,600,000 Marks according to the latest estimates. Bremerhaven will bear one sixth of this and will have to raise about 670,000 Marks between 1970 and 1973.

In addition the Federal state of Bremen and the central government will give proportionate sums to the building costs.

The fund plans to commence operations this year. It will consist of four senior officials, three junior officials and



The 'Presshaus' skyscraper in Bonn

(Photo: dpa)

It is for these reasons that Chancellor Brandt and his family do not live in the official residence. The Chancellor has made an arrangement with Foreign Minister Walter Scheel to take up residence on the Venusberg.

According to Dr. Emonds the famous height occupied by many VIPs in Bonn, the Venusberg, which is almost three hundred feet above the uncomfortable valley of the city, the air is good. There is excellent circulation, a good ozone concentration and the minimum of fog.

Apart from Chancellor Brandt, Foreign Minister Walter Scheel also lives on the Venusberg, but his Foreign Ministry lies in an area that the weathermen would designate "bad".

Ludwig Erhard, many diplomats and politicians as well as the Federal President, Gustav Heinemann, also live on the height. The President's official residence, the Villa Hammerschmidt, is also not very favourably located for climate

and so the President when his official duties are over is driven to the small house he has on the Venusberg.

The worst off of all ministries in Bonn are those who work with the Ministry of Transport, headed by Minister Georg Leber. Their buildings are located in that part of the city that is designated "least ventilation, greatest possibility of atmospheric pollution and fog, least concentration of ozone".

The Education Ministry, the previous Ministry of Posts and the now defunct Refugees and Expellees Ministry as well as the Agriculture Ministry are all situated in parts of the city that are considered by the experts to have unfavourable weather conditions. Officials in these Ministries complain of poor air circulation, considerable sultriness and very little fresh air.

Helmut Schmidt's Defence Ministry, on the other hand, enjoys a most favourable location on the Nordhöhe, a height some distance from Bonn's centre. From his vantage point the Minister can look down on the Chancellor with its miserable weather.

The Economics Affairs Ministry and the Justice Ministry which is located on a slope from the Nordhöhe are also fairly favourably situated.

A relatively good climatic condition helps the officials in the Labour Ministry, the Interior Ministry and the Ministry of Finance in their work. These offices are all to be found on the edge of the capital.

The Ministry for Economic Cooperation is to be found in a zone that is marked on the expert's map as being "bad".

Most Ministries will overcome the climate problem when they move to the new government quarter that is being prepared in Bonn. The area proposed for this rebuilding programme is marked by the climate experts as "good".

Bundestag members currently enjoy a site that has a good climate. According to the experts the Bundestag and the Bundeshaus (Upper House) are located in an area that although quite sultry has a good air circulation, a minimum concentration of dust and a good ozone quality.

But ordinary citizens in the capital can do little against the humid air that struggles heavily through the city making it hard to breathe.

(Hannoversche Allgemeine, 28 May 1970)

(Hannoversche Allgemeine, 12 June 1970)

SPORT

Breakfast
complaint
Forward play
wins World
Cup

As a tourist country the Federal Republic excels, with hoteliers, restaurateurs and the managers of spas, in no effort to give their guests what went.

But one service on which this country still falls down very badly is providing a decent breakfast!

The Central Marketing Gesellschaft, which represents the agricultural sector of the English and Federal Republic, turned this nightmare into one of the pleasures of taking a holiday in the Federal Republic.

There are around 500,000 people staying in our hotels and in the extreme heat in South America certain that most if not all of the teams in this country can also be expected to adopt these sensible, energy-holy trinity, bread roll, a dab of jam.

So the Central Marketing Gesellschaft plans to put what some consider to be an important meal of the day under a microscope.

They will report on what has happened to this country can expect to be breakfast at a number of hotels and boarding houses.

The delicate operation began in May when twenty men and women

longing to the committee "Frühstück 70" (Hotel Breakfast 70) went on a tour of Cologne may have regarded themselves incognito into boarding houses and inns in Kiel.

They approached their breakfasts with a notepad and recorded their impressions on printed questionnaire sheets.

Their findings will be made public in the blue ribbon! In fact they may watch. An attacking game pays in both respects for footballers.

Only five hotels offered eggs for breakfast. Three others gave eggs, but only one served them with a side of ham. Twelve hotel proprietors were blankly as if they did not know what was going on. In ten hotels eggs were not served.

The cost of these precious eggs was not between 50 Pfennigs and one Mark. Hoteliers said they could not provide them since "the cook does not come out at ten o'clock!"

The twenty breakfasters were not satisfied. Most hotel guests, however, were not. In only two hotels were the breakfasting guests not content with the "holy trinity".

In all other hotels, however, the guests declared that they would far rather begin their morning with a table set with eggs, bacon and a cheese plate.

(Frankfurter Rundschau, 4 June 1970)

Accident insurance
for school children

All school children are to be insured against accident according to a bill prepared by the Ministry of Labour.

Work on this is so far advanced that the bill will probably be presented to the government and legislature before the end of the year.

Pupils of all elementary, intermediate and higher schools will then have the same protection as workers.

The costs will be borne by the parents and their accident insurance associations. Contributions will correspond to those of industrial and professional accident insurance.

(Kölnischer Stadt-Anzeiger, 10 June 1970)



Gerd Müller (left) and Uwe Seeler at the Mexico World Cup

(Photo: Nordbild)

Gerd Müller, goal-scorer
extraordinary

Don't score too many goals in Mexico, otherwise we'll never be able to afford you," Bayern Munich manager Robert Schwan jokingly implored Gerd Müller before golden legs Gerd left for the World Cup.

Even at that stage toddlers already knew his name: Gerd Müller, record-breaker, extraordinary.

Müller scored the goals that qualified this country for the World Cup, headed the list of Federal league goal-scorers and set up a new record of thirteen goals in a European Cup competition. Müller goals have made history.

To crown it all Müller went on to score more goals than any other player in the World Cup - ten - and even scored a hat-trick against Peru. What more can he want?

In Mexico Gerd Müller gained world fame as a goal-scorer. Even Pelé of Brazil made no bones about his desire to play in the same team as Müller one of these days. His wish was shared by other players and teams.

Small wonder that Müller's market value has rocketed in a matter of weeks. International punters who are best able to estimate the market value of a player agreed that he was now worth a transfer fee of roughly four million Marks, which makes him in all probability the country's most expensive player at the moment.

Gerd Müller knows what he is worth. "I wouldn't play in a South American team, though. An Italian club would be more in my line," he commented, making it fairly clear which way the land lies.

In the circumstances Robert Schwan's anxiety is only too understandable. He foresaw what was going to happen. "Gerd Müller is phenomenal," trainer Rudi Gutendorf reckons. "He not only scores

goals but also puts in a tremendous amount of leg work."

And Uwe Seeler, the man with the most international caps and goals ever for this country, maintains that "Gerd is always there where the danger lies. He is an extremely dangerous man himself and has a nose for goal prospects."

"He is a past master in close play but can also make first-rate passes, as I have found out to my own profit. You can hardly take the ball away from him, which is very important in a forward."

When Müller appears in the penalty area his very name is a danger signal for the defenders. He can not only boot the ball

but also head it, as was only too obvious in Mexico.

"I used to have inhibitions about heading but times have changed. A player should never be afraid of heading the ball. I am not," he adds with a matter-of-fact air as though he were ordering a glass of milk.

Gerd Müller also has another explanation for the number of goals he scores. "I cover the ball almost completely when I gain possession. I need next to no space in which to turn, and I can shoot from virtually any angle in the penalty area - with my left foot, with my right foot, in the air and with my head." And his shots are danger itself.

"There is only thing on which I am not too keen," he frankly admits, "and that is long shots."

(Frankfurter Rundschau, 25 June 1970)

Uwe Seeler crowns
unparalleled
soccer career

Seeler's Christian name has for years been a war cry: three letters - "Uwe!" Uwe Seeler, born 5 November 1936, height five foot six, weight eleven stone thirteen. Hamburg SV junior, one junior, three "B"s and seventy senior caps, played once for FA youth team, once for world eleven, twice for Europe's UEFA (Union Européenne de Football Amateur).

Old hat, say his critics, and he has plenty of them. This country's greatest football idol since Fritz Walter, the man who captained the team that won the World Cup at Bern in 1954, not only has friends.

This enmity is due less to the man himself than to national coach Helmut Schön, who, so many pundits feel, was unable to decide at the right juncture to drop the old star. Seeler was even re-selected after publicly declaring his retirement from international football.

Critics have now been silenced. Even the apparently insuperable problem of accommodating Seeler and Gerd Müller, his successor-designate, in one forward line was solved.

This may well have been one of the greatest achievements of a great player, a man who has always given of his best and kept on doing so even when everyone else had given up an encounter as a bad job.

It is talent was particularly apparent in the World Cup preliminaries and even more so in the World Cup itself. Seeler scored the equaliser in the inglorious first game against Morocco and went on to score the equaliser in the glorious victory over England.

He whipped enthusiasm into the team's ranks by virtue of his own enthusiasm and showed the stuff of which captains are made (and that is a good deal more than a mere amand). Seeler is a rich man, a very rich man due to football, but he has given a lot.

It took uncommon energy and an unparalleled devotion to the job to overcome setbacks that would have finished many another man's career. "He just will not be licked," the fans say.

His career is as extraordinary as his energy. For sixteen years Seeler has been regularly capped for his country. He has been team captain for the past eight. Except for 1957 he has played for the Federal Republic every season.

He gained a place in the senior team via the youth team of the FA, the juniors and the "B" eleven, and the play-off against Uruguay for third place in the World Cup was his 71st appearance for his country.

He has now beaten the record of Paul Jancs of Düsseldorf, who was capped 71 times between 1932 and 1942. At the same time Seeler has scored more goals in international than any other German.

Four World Cups, one selection for the World eleven and, two games for the all-European team round off the picture of an impressive career. "Uwe" has done this country proud.

Rolf Heggen

(Frankfurter Allgemeine Zeitung für Deutschland, 20 June 1970)

SA 0.05	Colombia col. \$ 1.00	Formosa NT 2.50	Rp. 15.00	Malawi M. \$ 0.40	Paraguay G. 15.00	Sudan S. 3.50	PT 5.50
Al 10.00	Congo (Brazzaville) C.F.A. 30.00	France F.F.A. 30.00	11 d	Mali M. \$ 0.40	Philippines P. \$ 0.80	Syria S. 3.50	EAS 0.25
OA 0.50	Congo (Kinshasa) Makuta 7.00	Gambia DM 1.00	11 d	Mozambique M. \$ 0.40	Poland P. \$ 0.80	Tanzania TAN 0.25	EAS 0.25
Sec. 1.00	Costa Rica C. 0.13	Germany DM 1.00	11 d	Nepal Esc. 1.00	Portugal P. \$ 0.80	Thailand THA 0.25	EAS 0.25
\$ 10.00	Cyprus C. 0.13	Ghana G. 0.13	11 d	Netherlands Antilles N.A. 0.50	Rhodesia R. \$ 0.80	Togo TOG 0.25	EAS 0.25
10 c.	Czechoslovakia C. 0.13	Guatemala G. 0.13	11 d	Netherlands N. 0.50	Rwanda R. \$ 0.80	Tunisia TUN 0.25	EAS 0.25
10 c.	Denmark D. 0.13	Haiti H. 0.13	11 d	Nigeria N. 0.50	Swaziland S. \$ 0.80	Uganda UGA 0.25	EAS 0.25
10 c.	El Salvador S. 0.13	Honduras H. 0.13	11 d	Senegal S. 0.50	Switzerland S. \$ 0.80	USA USA 0.25	EAS 0.25
10 c.	Ecuador E. 0.13	Hong Kong H. 0.13	11 d	Sierra Leone S. 0.50	Taiwan T. \$ 0.80	USSR USSR 0.25	EAS 0.25
10 c.	Finland F. 0.13	India I. 0.13	11 d	South Africa S.A. 0.50	Thailand THA 0.25	Venezuela VEN 0.25	EAS 0.25
10 c.	France F. 0.13	Indonesia I. 0.13	11 d	Uganda UGA 0.25	Thailand THA 0.25	Yugoslavia YUG 0.25	EAS 0.25
10 c.	Germany G. 0.13	Iran I. 0.13	11 d	Uganda UGA 0.25	Thailand THA 0.25	Zambia ZAM 0.25	EAS 0.25
10 c.	Ghana G. 0.13	Iraq I. 0.13	11 d	Uganda UGA 0.25	Thailand THA 0.25		
10 c.	Guatemala G. 0.13	Israel I. 0.13	11 d	Uganda UGA 0.25	Thailand THA 0.25		
10 c.	Haiti H. 0.13	Italy I. 0.13	11 d	Uganda UGA 0.25	Thailand THA 0.25		
10 c.	Honduras H. 0.13	Japan J. 0.13	11 d	Uganda UGA 0.25	Thailand THA 0.25		
10 c.	Hong Kong H. 0.13	Korea S. 0.13	11 d	Uganda UGA 0.25	Thailand THA 0.25		
10 c.	India I. 0.13	Laos L. 0.13	11 d	Uganda UGA 0.25	Thailand THA 0.25		
10 c.	Indonesia I. 0.13	Lebanon L. 0.13	11 d	Uganda UGA 0.25	Thailand THA 0.25		
10 c.	Iran I. 0.13	Libya L. 0.13	11 d	Uganda UGA 0.25	Thailand THA 0.25		
10 c.	Iraq I. 0.13	Luxembourg L. 0.13	11 d	Uganda UGA 0.25	Thailand THA 0.25		
10 c.	Israel I. 0.13	Madagascar M. 0.13	11 d	Uganda UGA 0.25	Thailand THA 0.25		
10 c.	Italy I. 0.13		11 d	Uganda UGA 0.25	Thailand THA 0.25		
10 c.	Japan J. 0.13		11 d	Uganda UGA 0.25	Thailand THA 0.25		
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10 c.	Madagascar M. 0.13		11 d	Uganda UGA 0.25	Thailand THA 0.25		